



U. S. Department of Justice

BUREAU OF ALCOHOL, TOBACCO, FIREARMS AND EXPLOSIVES
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Laboratory Report

ANAB ISO/IEC 17025:2017 Accredited
Forensic Testing Laboratory

Special Agent Reid Messner
Bureau of Alcohol, Tobacco, Firearms and Explosives
301 North Main Street
Suite 1802
Greenville, SC 29601

Date of Report: 3/3/2022
Case Number: 2021-A-000235
Submission(s): 1
Reference: 763056-21-0049
Title: Grandfather Mountain
Highland Games, Inc.
Type of Exam: Fire Debris
Explosives

The following exhibits were received by the laboratory on October 4, 2021.

EXHIBITS

Lab # – Agency #

- 1 - (2) Pipe with end caps, fuse, powder
- 2 - (5) Winchester 357 cartridge casing (from render safe procedure)
- 3 - (6) 1/2-gallon Homestead Creamery 2% homogenized milk container and a clear liquid
- 4 - (7) 1/2-gallon Homestead Creamery whole chocolate milk container and a clear liquid
- 5 - (8) Pint-size glass jar (Mason Jar) with lid and a pink-colored liquid
- 6 - (9) Pint-size glass jar with lid and pink-colored liquid
- 7 - (10) Quart-sized glass jar (Ball brand) with lid and a pink-colored liquid
- 8 - (11) 18 ounce metal (Brita brand) water bottle and a pink-colored liquid
- 9 - (12) 32 ounce, plastic (Kingsford brand) charcoal lighter container
- 10 - (13) 32 ounce, plastic (Kingsford brand) charcoal lighter container
- 11 - (14) 64 ounce, plastic (Charking Instant Ignite brand) lighter fluid container
- 12 - (15) 32 ounce, plastic (Penzoil brand) 10W-30 motor oil container
- 13 - (16) Plastic (Gardner Bender brand) container with cable staples
- 14 - (17) Pint-sized glass jar with lid, batteries, and metal balls
- 15 - (18) 500 milliliter metal (Carolina brand) methylene chloride container
- 16 - (20) BC brand electric burner, model:BC-99700

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EXAMINATION/ANALYSIS AND INTERPRETATION OF RESULTS

This report refers to exhibits by Lab Number. The following results only apply to the items tested.

Exhibit 1 contained a damaged pipe assembly that consisted of a 2-inch nominal diameter polyvinylchloride (PVC) pipe with a Lasco brand end cap on each end. The end caps were secured onto the pipe with a clear adhesive. Clear adhesive also appeared to coat the inside of the pipe assembly. An approximate 1/8-inch diameter, functional green pyrotechnic fuse protruded through an approximate 1/4-inch diameter hole in one of the end caps. Outside the end cap, the fuse continued to protrude through a mass of clear adhesive, a mass of beige-colored adhesive (visually similar to a caulk type material), and another mass of clear adhesive. The pyrotechnic fuse measured at least 9 inches in length. The clear adhesive was identified as an ethylene vinyl acetate-based adhesive (example hot melt glue).

The powder in Exhibit 1 was identified as a mixture of disc-shaped single base smokeless powder, black powder, an orange clay material, pyrotechnic stars, and a perchlorate explosive composition (example: flash powder).

Additional items submitted in Exhibit 1 included small rocks, small pieces of glass with a gray foil-like material adhering to the glass, and lead-based metal balls that appeared to be coated with white paint. The balls were physically consistent in size to #00 lead buckshot.

Exhibit 2 contained a spent cartridge case. Due to the amount of smokeless powder found in Exhibit 1, no testing of Exhibit 2 was performed.

The liquids in Exhibits 3 and 4 were identified as gasoline, which is an ignitable liquid.

The liquids in Exhibits 5, 7, and 8 were each identified as a mixture of toluene and an isoparaaffinic product, both of which are ignitable liquids. There are some commercial products, such as aviation gas, which contain such a mixture. However, it could not be determined whether these liquids contained a single commercial product or a mixture of two individual products.

The liquid in Exhibit 6 was identified as a mixture of methanol and ethanol, both of which are ignitable liquids. There are some commercial products, such as denatured alcohol, which contain such a mixture. However, it could not be determined whether these liquids contained a single commercial product or a mixture of two individual products.

No fire debris or explosive testing was performed on Exhibits 9 through 16 as they were only submitted for fingerprint testing.

DISPOSITION OF EVIDENCE

The excess powder in Exhibit 1 will be destroyed in the laboratory. A small sample of each of the liquids was preserved onto a charcoal strip. The excess liquids will be destroyed in the laboratory. The remaining evidence, including preserved liquid samples, will be returned to Special Agent Messner.

Examiner:



Mathew Simon
Forensic Chemist

Technical Reviewer:



Andrew Hawkins
Forensic Chemist

Administrative Reviewer:



Robert Reed
Section Chief

TESTS PERFORMED

Exhibit ID	Analysis
1	Fourier transform infrared spectroscopy, Gas chromatography-mass spectrometry, Ignition susceptibility test, Scanning electron microscopy-energy dispersive spectroscopy, Visual examination, X-ray diffraction
2	Visual examination
3	Gas chromatography-mass spectrometry, Ignition susceptibility test, Visual examination
4	Gas chromatography-mass spectrometry, Ignition susceptibility test, Visual examination
5	Gas chromatography-mass spectrometry, Ignition susceptibility test, Visual examination
6	Gas chromatography-mass spectrometry, Ignition susceptibility test, Visual examination
7	Gas chromatography-mass spectrometry, Ignition susceptibility test, Visual examination
8	Gas chromatography-mass spectrometry, Ignition susceptibility test, Visual examination
9	Visual examination
10	Visual examination
11	Visual examination
12	Visual examination
13	Visual examination
14	Visual examination
15	Visual examination
16	Visual examination